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EPA Superfund
Explanation of Significant Differences:

IDAHO NATIONAL ENGINEERING LABORATORY (USDOE)
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Text:

<IMG SRC 1094088>

Power Burst Facility Corrosive Waste Sump and
Evaporation Pond Record of Decision

at the Idaho National Engineering Laboratory
Idaho Falls, Idaho

Explanation of Significant Difference for the Power Burst Facility
Corrosive Waste Sump and Evaporation Pond Record of Decision
at the Idaho National Engineering Laboratory

I. Introduction

This document presents an Explanation of Significant Difference (ESD) from the Record of Decision (ROD) for the Power Burst Facility Corrosive Waste Sump and Evaporation Pond Interim Action, which was signed by the United States Department of Energy, the United States Environmental Protection Agency, and the Idaho Department of Health and Welfare on September 30, 1992. This ROD was signed pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the December 1991 Federal Facility Agreement and Consent Order (FFA/CO) entered into by the United States Departmem of Energy, United States Environmental Protection Agency and the Idaho Department of Health and Welfare.

Site Name and Location:

Power Burst Facility Corrosive Waste Sump and Evaporation Pond
Waste Area Group 5, Operable Unit 13
Idaho National Engineering Laboratory

The lead agency for this action is the United States Department of Energy Idaho Operations Office (DOE-ID). The United States Environmental Protection Agency (EPA) and Idaho Department of Health and Welfare (IDHW) both concur with, and approve the need for, this significant change to the selected remedy. The three agencies participated jointly in the decision and preparation of this document.

This ESD, prepared in accordance with Section 117(c) of CERCLA and 40 CFR 300.435(c)(2)(i), is necessary to address needed modifications to the selected remedy identified in the Power Burst Facility (PBF) Corrosive Waste Sump and Evaporation Pond ROD; and is being implemented for the following reasons:

The amount of sediments requiring excavation has increased from the 100 cubic yards estimated in the ROD to 170 cubic yards identified in the Remedial Design/Implementing Remedial Action Work Plan, due to further site characterization which more clearly defined the areas requiring cleanup.

An inadequate number of partially filled certified low-level waste containers having sufficient void space and

remaining weight capacity are available to accommodate the expected volume of sediments.

Containment of the sludge and sediments will be utilized instead of stabilization, because the treatability
study confirmed that the ungrouted sediments meet the Radioactive Waste Management Complex (RWMC)
waste acceptance criteria and grouting does not significantly increase the long-term effectiveness of the remedy.

Excessive implementation times and increased costs would occur if the selected remedy detailed in the September
1992 Record of Decision were to be fully implemented with no significant decrease in risk.

This and other relevant documents will become part of the Administrative Record file pursuant to Section
300.825(a)(2) of the National Oil and Hazardous Substances Pollution Connngency Plan (NCP). Copies of this ESD
and the Administrative Record are available to the public in the following regional INEL Information Repositories:

DOE Reading Room	INEL Pocatello Office	INEL Twin Falls Office
INEL Technical Libsary	1651 A1 Ricken Drive	233 Second Street North
1176 Science Center Drive	Pocatello, Idaho	Suite B
Idaho Falls, Idaho		Twin Falls, Idaho

INEL Boise Office	University of Idaho Library	Shoshone-Bannock Library
816 West Bannock	U of I campus	HRDC Building
Suite 360	Moscow, Idaho	Bannock & Pima Streets
Boise, Idaho		Fort Hall, Idaho

II. Site History, Contamination Problems, and Selected Remedy

The Idaho National Engineering Laboratory (INEL) is located 32 miles west of Idaho Falls, in southeastern Idaho
and encompasses approximately 890 square miles of semi-arid high desert, partially overlying the Snake River
Plain Aquifer. The Power Burst Facility is situated in the southeast portion of the INEL (see Figure 1). The area
of focus is the corrosive waste sump and adjacent evaporation pond.

The PBF Corrosive Waste Sump is a concrete structure that was used during the neutralization of reactor
secondary coolant water prior to discharge to the PBF evaporation pond. The sump measures 11 feet on each side
and extends to a depth of 21 feet. The walls are 12 inch thick reinforced concrete and the base measures 15
inches thick. Discharge to the evaporation pond is through a single walled pipeline.

The evaporadon pond is a lined, bermed surface impoundment, spanning 140 feet on each side. The pond was
constructed in 1978 by berming native soils to 4 1/2 feet and lining the interior with Hypalon. The liner was then

covered with approximately 6 inches of sand for protection. This sand has become contaminated due to the discharge of secondary cooling water containing chromium and cesium-137.

In the FFA/CO, DOE was tasked with assessing the risk presented by the pond and sump. Following an EPA-approved risk assessment methodology for an interim action,it was found that the pond represents an unacceptable risk to a hypothetical occupational worker through the inhalation pathway due to the presence of chromium-contaminated dust. The decision to remediate the evaporation pond and sump was presented to the public in a proposed plan. The preferred alternative was the removal of areas of high chromium contamination based on the cesium/chromium correlation (high cesium concentrations were identified in the same areas as the high chromium concentrations in the sediments) that was previously identified. A grout material would be manufactured from sediments and injected into void spaces in existing certified low level waste containers scheduled for disposal in the RWMC.

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Following review of public comments, the preferred alternative listed in the proposed plan was deemed by the agencies to be the most practicable. The selected remedy was presented by the DOE in a ROD and approved by the EPA, with IDHW concurrence. Following signing of the ROD, design of the remedial action commenced. The Remedial Design/lmplementing Remedial Action Work Plan is filed in the Administrative Record in the binder for Operable Unit 5-13.

III. Description of Significant Differences and Basis

The areas to be cleaned up, the cleanup levels, and the disposal of the contaminated sediments within the RWMC will be completed as provided in the ROD. However, that component of the remedy that deals with preparing the sediments for disposal in the low-level waste containers will be modified for the reasons outlined in section I of this ESD and further discussed below.

Sediment samples collected from the pond in December 1992 for a treatability study to be used in the grout design provided the following significant information:

The previously identified correlation between the concentrations of cesium-137 and chromium was found to be invalid.

Testing of the unstabilized pond sediment samples was done using the Toxicity Characteristic Leaching Procedure (TCLP). This confirmed that the sediments will meet the RWMC waste acceptance criteria without stabilization prior to disposal.

Because the correlation between cesium and chromium was not demonstrated during the analysis of the treatability study samples, the plan to identify "hotspots" for cleanup using a hand-held radiation detector would not be effective. Sampling of the entire pond on a 20-foot square grid was substituted for the originally planned survey. Results from this sampling effort indicated that approximately 170 cubic yards of sediments would be generated by the cleanup, rather than the 100 cubic yards estimated in the proposed plan and ROD. The treatability study results show that grouting 170 cubic yards of sediments would create a total volume of approximately 240 cubic yards of grout.

Concurrent with the treatability study, the remediation contractor initiated efforts to identify and coordinate delivery of waste containers destined for the RWMC which had sufficient void space for the projected volume of grouted sediments. This resulted in the identification of three additional issues:

Due to implementation of waste minimization at the INEL, most waste containers have only minimal amounts of void space available for grouting.

Most waste containers with significant void space are close to their weight limit, and cannot accept significant amounts of the dense grout material. Delaying the project pending availability of sufficient containers with both the weight capacity and enough void space to accept 240 cubic yards of grouted sediments would significantly extend the project completion date.

More detailed contaminant characterization of waste container contents would be needed to document worker safety and health protection. This could result in additional worker exposure, additional costs, and schedule delays.

In view of all the issues identified above, the three agencies agreed that a modificatdon to the selected remedy was needed. Empty waste containers will be used for disposal of the sediments if sufficient partially filled containers requiring only minimal further characterization of the contents are not available. Containers will be filled directly with the contaminated sediments, sealed and placed in the RWMC. Without grouting the sediments, the remedy remains protective of human health and the environment because: 1) it reduces the potential for exposure via the inhalation and direct radiation pathways, as identified in the ROD; 2) the treatability study confirmed that the ungrouted sediments meet the RMWC waste acceptance criteria, and; 3) institutional and administrative controls for a low-level waste disposal facility are presently in place at the RWMC.

The modified remedy will have an impact on the cost of the project as well, due to the substantial increase in the estimated quantity of contaminated sediments. The need to procure new boxes for disposal of the sediments will also increase cost. Current estimates indicate that the project can be completed without exceeding the estimated cost included in the ROD by more than 50%. However, because the current estimated cost is

close to 150% of the
estimate in the ROD and there are several areas of uncertainty with subcontractor costs, it is possible that the total
cost of the project may exceed 150% of the ROD estimate.

IV. Affirmation of the Statutory Determination

The revised remedy continues to utilize permanent solutions and treatment technologies to the extent practicable
for the site. However, the three agencies consider certain aspects of the original remedy to be no longer
practicable when evaluated in accordance with the criteria established by the NCP [40 CFR 300.430 (e) (9)].

Mixing the sediments with grout would have dispersed the contaminants in an inert matrix and allowed the
sediments to flow into void spaces within the waste containers. However, as discussed in Section 8.2.1 of the
ROD, the permanence of grout mixtures has not been established. Consequently, grouting to stabilize the
sediments is no longer practicable because it does not significantly increase the long-term effectiveness of the
remedy.

Mixing the sediments with grout increases the volume of contaminated material. Waste minimization
principles were not a major factor in the initial remedy selection process because the grout mixture would
have been injected into existing container void spaces and there would not be a net increase in the volume of
materials disposed at the RWMC. Due to the limited availability of partially filled containers, the grouted
sediments would have to be placed in new boxes, thus increasing the volume of material disposed at the RWMC.

Due to the increase in worker exposure, short-term effecdveness wil1 be reduced if existing partially filled
boxes are opened for further charaaerization of the contents.

The implementability of the original remedy has been reduced because of the limited availability of partially
filled containers with sufficient void space and/or remaining weight capacity. In addition, the use of grout is
no longer required to provide a medium which can be injected into existing container void space.

Cost is the last of the balancing criteria, and is also a factor in determining practicability. Grouting would
cost more than was originally expected, due to the increased volume of contaminated sediments, as well as the
need to complete a more detailed evaluation of waste container contents.

Considering the new information that has been developed, DOE, EPA, and IDHW all believe that the remedy
remains protective of human health and the environment, complies with Federal and State requirements that have
been identified as relevant and appropriate to this interim remedial action, and is cost effective.

V. Public Participation Activities

This ESD has been published and a notice placed in the Post Register (Idaho Falls), Idaho State Joumal (Pocatello), Times News (Twin Falls), Southern Idaho Press (Burley), Idaho Statesman (Boise), Lewiston Morning Tribune (Lewiston), and Daily News (Moscow). This ESD and the contents of the Administrative Record are available for public review. ln addition to the Administrative Record on file for the Record of Decision, the Administrative Record for this action includes a copy of this ESD, Remedial Design/Implementing Remedial Action Work Plan (RD/RAWP) and supporting information (refer to binder for Operable Unit 5-13).

Implementation of this action will begin approximately 30 days after issuance of this ESD. Although modified from the original ROD, the remedy, as modified by this ESD, does not represent a fundamental change in scope or purpose of this action. Thus, a formal comment period will not be conducted.

Consistent with NCP Section 300.435(c)(2)(i), this ESD has been placed into the previously listed INEL Information Repositories, after the publication of a notice in the following papers:

Post Register (Idaho Falls), Idaho State Journal (Pocatello), Times News (Twin Falls), Southern Idaho Press (Burley), Idaho Statesman (Boise), Lewiston Morning Tribune (Lewiston), and Daily News (Moscow)

The public is encouraged to review this ESD and other relevant documentation in the Administrative Record and provide comments to any of the agencies involved. Additional information may be requested within 14 days of the notice of issuance for this ESD by contacting:

Reuel Smith
INEL Community Relations Plan Office
P.O. Box 2047
Idaho Falls, Idaho 83403-2047
(208) 526-6864

Signature sheet for the foregoing Explanation of Significant Difference for Operable Unit 5-13 interim action at the Idaho National Engineering Laboratory between the United States Department of Energy and the United States Environmental Protection Agency, with concurrence by the Idaho Department of Health and Welfare. The Operable Unit 5-13 interim action consists of cleanup of the Power Burst Facilicy Evaporation Pond, Corrosive Waste Sump, and discharge pipe at the Idaho National Engineering Laboratory.

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John M. Wilcynski
Acting Manager
Department of Energy Idaho Operations Office

Date

Signature sheet for the foregoing Explanation of Significant Difference for Operable Unit S-13 interim action at the Idaho National Engineering Laboratory between the United States Department of Energy and the United States Environmental Protection Agency, with concurrence by the Idaho Department of Health and Welfare. The Operable Unit 5-13 interim action consists of cleanup of the Power Burst Facility Evaporation Pond, Corrosive Waste Sump, and discharge pipe at the Idaho National Engineering Laboratory.

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Gerald A. Emison Date
Deputy Regional Administrator, Region 10
Environmental Protection Agency

Signature sheet for the foregoing Explanation of Sigificant Difference for Operable Unit 5-13 interim action at the Idaho National Engineering Laboratory between the United States Deparment of Energy and the United States Environmental Protection Agency, with concurrence by the Idaho Department of Health and Welfare. The Operable Unit 5-13 interim action consists of cleanup of the Power Burst Facility Evaporation Pond, Corrosive Waste Sump, and discharge pipe at the Idaho National Engineering Laboratory.

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Jerry E. Harris Date
Director
Idaho Department of Health and Welfare

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

May 6, 1994

Reply to
Attn of: HW-124

Mr. Jerry Lyle, Director
Environmental Restoration Division
U.S. Department of Energy
Idaho Operations Office
785 DOE Place
Idaho Falls, Idaho 83401-1562

Re: The Explanation of Significant Difference for the Power Burst Facility Corrosive Waste Sump and Evaporation Pond Interim Action (Operable Unit 5-13)

Dear Mr. Lyle:

We have reviewed the referenced document and have briefed Region 10 management up through the Deputy Regional Administrator on the modified remedy that DOE will implement at this site.

The decisions presented are consistent with the EPA guidance for an Explanation of Significant Difference. The rationale for, and scope of the changes are clearly presented in the document. We agree that the modified remedy is consistent with the scope and purpose of the remedy selected in the Record of Decision for this operable unit. The remedial action should be completed as soon as possible, consistent with the Federal Facility Agreement and Consent Order for the INEL, and the ROD for this OU.

If there are any further issues that you or your staff wish to discuss regarding this action, please contact me at (206) 553-7261, or Howard Blood, EPA WAG 5 Manager at (206) 553-1172.

Sincerely,

Wayne Pierre
INEL FFA/CO Project Manager

cc: Lisa Green, DOE-ID
Talley Jenkins, DOE-ID
David Frederick, IDHW-IF
Shawn Rosenberger, IDHW-IF
Dean Nygard, IDHW